

Serial No. 10/068,843

IN THE CLAIMS:

Please AMEND claims 1-9 and add claims 10-12 in accordance with the following:

1. (CURRENTLY AMENDED) A paper processing device which includes a discriminating portion ~~to sense~~sensing papers passing by a specified sensor, and by carrying out a discriminating process according to ~~the a~~a result of the sensing ~~to apply~~applying one of plurally classified discriminating results to the sensed papers, and wherein, ~~in every process, at least one paper or more to be~~that is an objective objectives of one a paper processing process is transferred one by one along a transfer route that passes through the discriminating portion, and transfer routes of each paper after passing through the discriminating portion is changed according to discriminating results at the discriminating portion, the paper processing device comprising:


a sensor output abnormality detecting portion that carries out a detecting process to detect that ~~the an~~an output of the sensor is in a specified abnormal status according to the output of the sensor before a start of the ~~one paper processing~~paper processing process, and when the specified abnormal status is detected in the detecting process conducted before the start of the one process, further carries out a detecting process to detect the output of the sensor also after the start of the paper processing ~~one~~ process; and

a transfer control portion that starts the paper processing ~~one~~ process even when either of the specified abnormal status or normal status is detected in an initial detecting process conducted before the start of the paper processing ~~one~~ process by the sensor output abnormality detecting portion, and in the case where the specified abnormal status is detected in the initial detecting process, transfers ~~papers at least one paper~~at least one paper that passes through the discriminating portion after the start of the paper processing ~~one~~ process until a normal status is detected in the detecting process of the sensor output carried out after the start of the paper processing ~~one~~ process, along a transfer route corresponding to the specified abnormal status after ~~they the~~the at least one paper passes through the discriminating portion,

wherein the sensor is cleaned by transfer of paper, and sensor cleaning and the paper processing process are accomplished in parallel.

2. (CURRENTLY AMENDED) The paper processing device according to claim 1, wherein:

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 ~~one of the discriminating portion carries out a discriminating process including a discriminating results is that a paper is abnormal as one of the discriminating results;~~ and the transfer control portion transfers, in the case where the specified abnormal status is detected in the initial detecting process conducted before the start of ~~one the paper processing~~ process by the sensor output abnormality detecting portion, ~~papers at least one paper that~~ passes through the discriminating portion after the start of the paper processing ~~one-process~~ and cleans the sensor, until the normal status is detected in the detecting process carried out after the start of the paper processing ~~one-process~~, along the same transfer route as the case wherein the discriminating result that a paper is abnormal is obtained at the discriminating portion.

3. (CURRENTLY AMENDED) The paper processing device according to claim 1, further comprising:

a pool portion for ~~storing papers to store a paper~~ that ~~have~~ has been transferred along the transfer route corresponding to the specified abnormal status,

wherein the transfer control portion again transfers ~~again papers~~ paper stored in the pool portion, after the sensor output abnormality detecting portion detects normal status, along the transfer route to pass through the discriminating portion.

4. (CURRENTLY AMENDED) The paper processing device according to claim 1, wherein:

the sensor output abnormality detecting portion carries out the detecting process of the sensor output before the start of the paper processing ~~one-process~~, and when the specified abnormal status is detected in the detecting process carried out before the start of the paper processing ~~one-process~~, carries out a the detecting process at every time when ~~one of papers to be objectives~~ each paper that is the objective of the paper processing ~~one-process~~ passes through the discriminating portion, after the start of the paper processing ~~one-process~~, and carries out the detecting process until the one of a number of the papers passing that passed through the discriminating portion reaches a specified-predetermined number, and ~~until the~~ normal status is detected by the sensor output abnormality detecting portion.

5. (CURRENTLY AMENDED) The paper processing device according to claim 1, wherein:

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the sensor output abnormality detecting portion carries out the detecting process of the sensor output before the start of ~~one the paper processing process~~, and when the specified abnormal status is detected in the detecting process carried out before the start of the paper processing one-process, ~~it the transfer control portion starts the paper processing one-process, and carries out a detecting process after a specified predetermined number of papers to be that~~ are objectives of the paper processing one-process has have passed through the discriminating portion, and the sensor output abnormality detecting portion carries out a detecting process.

6. (CURRENTLY AMENDED) The paper processing device according to claim 1, further comprising:

~~wherein the paper processing device can freely transfer a pool of~~ mock papers different from papers to be objectives the at least one paper that is the objective of the paper processing process, that are transferred along a transfer route passing through the discriminating portion,

wherein the transfer control portion starts the paper processing one-process after the specified abnormal status is detected in the detecting process carried out before the start of one the paper processing process by the sensor output abnormality detecting portion, and when if it is detected that recovery to normal status has not been achieved even in when the detecting process is carried out at a specified moment predetermined time after the start of the paper processing one-process, after the predetermined time, the transfer control portion suspends transfer of papers after the specified moment among papers to be objectives the at least one paper that is the objective of the paper processing one-process, and transfers the mock papers along a transfer route passing through the discriminating portion, and

the sensor output abnormality detecting portion carries out a detecting process also after the mock papers pass through the discriminating portion.

7. (CURRENTLY AMENDED) The paper processing device according to claim 1, wherein:

the sensor is a line sensor comprising a plurality of sensor devices arranged in a width direction crossing the a paper passing transfer direction at the discriminating portion, and

the sensor output abnormality detecting portion detects that the output of the sensor is in the specified abnormal status when a specified predetermined number or less of the sensor devices among the plurality of sensor devices is faulty as the specified abnormal status.

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8. (CURRENTLY AMENDED) The paper processing device according to claim 6, wherein;

for at least the detecting process ~~to be carried out before the start of one the paper processing process, the sensor output abnormality detecting portion carries out a detecting process wherein the specified abnormal status is further divided into a specified first abnormal status and a specified second abnormal status, and also the sensor output abnormality detecting portion carries out the detecting process of the sensor output also after the mock papers pass through the discriminating portion, and~~

the transfer control portion starts the paper processing one process when either one of the first abnormal status among the specified abnormal statuses or and the normal status is detected in the initial detecting process carried out before the start of paper processing one process by the sensor output abnormality detecting portion, while when the second abnormal status ~~among the specified abnormal statuses~~ is detected in the initial detecting process, the transfer control portion transfers the mock papers along a transfer route passing through the discriminating portion prior to ~~the start of the one process~~ transferring the at least one paper that is the objective of the paper processing process.

9. (CURRENTLY AMENDED) The paper processing device according to claim 8, wherein;

the mock papers are longer with respect to ~~the a~~ width direction crossing ~~the a~~ transfer direction than the ~~papers to be objectives~~ at least one paper that is the objective of the paper processing process,

the sensor is a line sensor comprising a plurality of sensor devices arranged ~~even to a position exceeding a passing area of the at least one paper that is the objective~~ papers to be objectives of the paper processing process, in the width direction crossing the passing transfer direction of the papers at the discriminating portion; and

the sensor output abnormality detecting portion detects that the output of ~~a specified the sensor is in the specified abnormal status when a predetermined number or less of the sensor devices among the plurality of sensor devices is faulty as a specified abnormal status,~~ and detects the status wherein all the sensor devices with faulty output are sensor devices in the passing area of the ~~papers to be objectives of processing as a the first abnormal status among the specified abnormal statuses,~~ and also detects the status wherein sensor devices out of the passing area are included in the sensor devices with faulty output as ~~a the second abnormal~~

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status among the specified abnormal statuses.

10. (NEW) A paper processing device including a discriminating unit to sense a passing paper with a sensor, and based on a result of the sensing, apply one of a plurality of predetermined discriminating results to each passing paper, and wherein for a process, at least one paper that is an objective of the process is transferred one by one along a transfer route that passes through the discriminating unit, and each paper's transfer route is changed after passing through the discriminating unit according to the discriminating result for the paper, the paper processing device comprising:

a sensor output abnormality detecting portion to detect whether an output of the sensor is in a specified abnormal status at a beginning of the process, and if the output of the sensor is in the specified abnormal status, also detect the output of the sensor during the process; and

a transfer control unit to start the process, and when the sensor output abnormality detecting portion detects that the output of the sensor is in the specified abnormal status before the process begins, transfer papers through the discriminating unit to clean the sensor until a normal status is detected by the sensor output abnormality detecting portion, along a transfer route corresponding to the specified abnormal status,

wherein the sensor is cleaned by transfer of paper, and sensor cleaning and the paper processing process are accomplished in parallel.

11. (NEW) A paper processing device including a discriminating unit to sense a passing paper with a sensor, and based on a result of the sensing, apply one of a plurality of predetermined discriminating results to each passing paper, and wherein for a process, at least one paper that is an objective of the process is transferred one by one along a transfer route that passes through the discriminating unit, and each paper's transfer route is changed after passing through the discriminating unit according to the discriminating result for the paper, the paper processing device comprising:

a sensor output abnormality detecting portion to detect a status of an output of the sensor, that evaluates the output of the sensor at the beginning of the process, and if the status is not normal, evaluates the output of the sensor during the process; and

a transfer control unit to start the process, and if the output of the sensor is one of normal and a first abnormal status, transfer at least one paper that is an objective of the process through the discriminating unit to clean the sensor and advance the process towards completion,

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and if the output of the sensor is a second abnormal status, transfer at least one paper through the discriminating unit to clean the sensor, and transfer at least one paper that is an objective of the process through the discriminating unit to advance the process towards completion,

wherein the sensor is cleaned by transfer of paper, and sensor cleaning and the paper processing process are accomplished in parallel.

12. (NEW) A paper processing device comprising:

a sensor output abnormality detecting portion to detect a status of an output of a sensor, that evaluates the output of the sensor at the beginning of a process, and if the status is not normal, evaluates the output of the sensor during the process; and

a transfer control unit to transfer papers,

wherein sensors are cleaned by the transfer of papers, and sensor cleaning and the process are accomplished in parallel.
